

# 1981 Journal of Aircraft Index

*Note:* A Cumulative Index, referencing all of the papers published during 1980 and 1981 in the AIAA journals and the *Progress in Astronautics and Aeronautics* books, will be offered for sale early in 1982.

## How to Use the Index

In the Subject Index, pages 1074-1079, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, pages 1080-1081, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 1081-1087, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1981, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

## Subject Index

### Aircraft Technology, Conventional, STOL/VTOL

#### Aerodynamics

- Symmetric Flow Characteristics of Thin Rectangular Wings **C81-194**
- Aerodynamics of Inverted Leading-Edge Flaps on Delta Wings **C81-191**
- Advanced Circulation Control Wing System for Navy STOL Aircraft **C81-190**
- Recent Development of a Jet-Diffuser Ejector **C81-185**
- Linear and Nonlinear Aerodynamics of Three-Surface Aircraft Concepts **C81-175**
- Analysis of Thrust-Induced Effects on the Longitudinal Aerodynamics of STOL Fighter Configurations **C81-174**
- Inlet Drag and Stability Considerations for  $M/d_0=2.00$  Design **C81-173**
- Influence of Wing, Fuselage, and Tail Design on Rotational Flow Aerodynamics Beyond Maximum Lift **C81-170**
- Sharp-Edged Rectangular Wing Characteristics **C81-167**
- Evaluation of Three-Dimensional Transonic Codes Using New Correlation-Tailored Test Data **C81-159**
- Validation of a Wing Leading-Edge Stall Prediction Technique **C81-158**
- Low Reynolds Number Aerodynamic Characteristics of Low-Drag NACA 63-208 Airfoil **C81-155**
- High- $\alpha$  Aerodynamic Model Identification of T-2C Aircraft Using the EBM Method **C81-151**
- Effect of Leading-Edge Vortex Flaps on Aerodynamic Performance of Delta Wings **C81-149**
- Effects of Wing Leading-Edge Design on the Spin Characteristics of a General Aviation Airplane **C81-145**
- Effect of Sweep Angles on Aerodynamic Performance of Double Arrow Wing - An Analytical Study **C81-127**
- Vertical Momentum of the Fountain Produced By Multijet Vertical Impingement on a Flat Ground Plane **C81-119**
- Comparison of Experimental and Theoretical Turbulence Reduction from Screens, Honeycomb, and Honeycomb-Screen Combinations **C81-117**
- Computational and Simplified Analytical Treatment of Transonic Wing/Fuselage/Pylon/Store Interactions **C81-116**
- Conditions for Safe Separation of External Stores **C81-115**
- Harmonic Optimization of a Periodic Flow Wind Tunnel **C81-114**
- Application of Unsteady Airfoil Theory to Rotary Wings **C81-110**
- Scaling Wake-Particle Interactions for Aerial Applications Research **C81-107**
- Propulsive Aerodynamics of an Advanced Nozzle/Forward Swept Wing Aircraft Configuration **C81-105**
- Rational Design of an Airfoil for a High-Performance Jet Trainer **C81-096**
- Effects of Drive Slots on Parachute Performance **C81-089**
- Utilization of Propagating Stall in a Cascade of Vanes **C81-088**
- Spanwise Lift Distribution of Forward- and Aft-Swept Wings in Comparison to the Optimum Distribution, Form **C81-086**
- Longitudinal Aerodynamic Characteristics of the ATLIT Airplane **C81-085**
- Evaluation of Flow Quality in Two NASA Transonic Wind Tunnels **C81-078**
- Gun Firing Similarity for Aircraft Interference Problems **C81-072**
- Aircraft Technology Development in Sweden 1930-1980 **C81-069**
- New Rig for Flight Mechanics Studies **C81-064**
- Assessment of Propeller Influence on Lateral-Directional Stability of Multiengine Aircraft **C81-062**
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part III: Wings with Geometrical Discontinuities **C81-061**
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part II: Geometrically Continuous Wings **C81-060**
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part I: Basic Problems **C81-059**
- Turbulent Wind and Its Effect on Flight **C81-058**
- Cross-Flow Propulsion Fan Experimental Development and Finite-Element Modeling **C81-053**
- Effectiveness of Leading-Edge Vortex Flaps on 60 and 75 Degree Delta Wings **C81-049**
- Development of a Vortex-Lift Design Procedure and Application to a Slender Maneuver-Wing Configuration **C81-046**
- Criticality of Engine Exhaust Simulations on VSTOL Model-Measured Ground Effects **C81-044**
- Aerodynamic and Inlet Flow Characteristics of Several Hypersonic Airbreathing Missile Concepts **C81-042**
- Analytical Prediction of Vortex Lift **C81-041**
- Equilibrium Spinning of a Typical Single-Engine Low-Wing Light Aircraft **C81-036**
- Propeller Slipstream/Wing Interaction in the Transonic Regime **C81-035**
- Application of the Adaptive Wall Concept in Three Dimensions **C81-034**
- Investigation of Delta Wing Leading-Edge Devices **C81-032**
- PAN AIR Applications to Weapons Carriage and Separation **C81-023**
- Inverse Transonic Wing Design Method **C81-022**
- Transonic Flow Calculations over Two-Dimensional Canard-Wing Systems **C81-020**
- Performance Evaluation of an Air Vehicle Utilizing Nonaxisymmetric Nozzles **C81-017**
- Full-Scale Wind-Tunnel Study of the Effect of Nacelle Shape on Cooling Drag **C81-016**
- Alleviation of Spin-Entry Tendencies through Localization of Wing-Flow Separation **C81-014**
- Effect of Rear Stagnation Point Position and Trailing Edge Bluntness on Airfoil Characteristics **C81-011**
- Aerodynamics of a Round Jet in a Counterflowing Wind **C81-010**
- Spanwise Distribution of Control Points in the Method of Finite Elementary Solutions **C81-009**

- Design of the Circulation Control Wing STOL Demonstrator Aircraft C81-008  
 Water Tunnel Flow Visualization: Insight into Complex Three-Dimensional Flow-fields C80-115  
 Subsonic and Transonic Similarity Rules for Jet-Flapped Wings C80-025

### **Aeroelasticity**

- Wing/Store Flutter with Nonlinear Pylon Stiffness C81-179  
 Wind Tunnel Demonstration of Aeroelastic Tailoring Applied to Forward Swept Wings C81-178  
 Wing/Store Flutter Suppression Investigation C81-177  
 Historical Development of Aircraft Flutter (History of Key Technologies) C81-168  
 Experimental Investigation of Flutter in Midstage Compressor Designs C81-162  
 Application of Unsteady Airfoil Theory to Rotary Wings C81-110  
 Recent Development of the YF-17 Active Flutter Suppression System C81-098  
 Experimental Substantiation for Hovering Rotor Vertical Impedance Calculations C81-077

### **Civil Missions and Transportation**

- Maritime Patrol Airship Study (MPAS) C81-143

### **Configuration Design**

- Aeroelastic Divergence of Unrestrained Vehicles C81-195  
 Advanced Circulation Control Wing System for Navy STOL Aircraft C81-190  
 Impact of Ramp Launch Technology on a Navy Support Aircraft C81-183  
 Performance Prediction for Light Airplanes C81-180  
 Linear and Nonlinear Aerodynamics of Three-Surface Aircraft Concepts C81-175  
 Naval Airship Program for Sizing and Performance (NAPSAP) C81-123  
 Conditions for Safe Separation of External Stores C81-115  
 Spanwise Lift Distribution of Forward- and Aft-Swept Wings in Comparison to the Optimum Distribution Form C81-086  
 The Outside Has To Be Bigger Than the Inside C81-080  
 Aircraft Technology Development in Sweden 1930-1980 C81-069  
 Effectiveness of Leading-Edge Vortex Flaps on 60 and 75 Degree Delta Wings C81-049  
 Development of a Vortex-Lift Design Procedure and Application to a Slender Maneuver-Wing Configuration C81-046  
 Analysis of Strake Vortex Breakdown Characteristics in Relation to Design Features C81-045  
 Criticality of Engine Exhaust Simulations on VSTOL Model-Measured Ground Effects C81-044  
 Role of Figures of Merit in Design Optimization and Technology Assessment C81-015  
 Analysis and Design of Strake-Wing Configurations C80-004

### **Deceleration Systems**

- Stress Measurements in Bias-Constructed Parachute Canopies During Inflation and at Steady State C81-163  
 Retardation System for Relatively Low-Altitude, High-Subsonic Speed, 2000-lb Payload Deliveries C81-111  
 Effects of Drive Slots on Parachute Performance C81-089

- Wind-Tunnel Measurements of Dynamic Reefing Line Force in Ribbon Parachutes C81-005

### **Economics**

- Aircraft Applications of Titanium: A Review of the Past and Potential for the Future (History of Key Technologies) C81-182  
 Role of Figures of Merit in Design Optimization and Technology Assessment C81-015  
 Effects of Wind on Aircraft Cruise Performance C79-004

### **Flight Displays**

- A Geometrical Study of the Steady-State Spin for a Typical Low-Wing General Aviation Aircraft C81-093

### **Flight Operations**

- Impact of Ramp Launch Technology on a Navy Support Aircraft C81-183  
 Prediction of Range and Endurance of Jet Aircraft at Constant Altitude C81-165  
 Magnitude and Frequency of Wind Speed Shears from 3 to 150 Meters C81-109  
 Current Status and the Future of Advanced Supersonic Transport Noise C81-104  
 Dynamic Stress in a Towing Wire due to Forced Acceleration C81-087  
 Minimum Fuel Paths for a Subsonic Aircraft C81-071  
 Aircraft Wake Investigation C81-013  
 Effects of Wind on Aircraft Cruise Performance C79-004

### **General Aviation**

- Influence of Wing, Fuselage, and Tail Design on Rotational Flow Aerodynamics Beyond Maximum Lift C81-170  
 Determination of an Angle-of-Attack Sensor Correction for a Light Airplane C81-156  
 Effects of Wing Leading-Edge Design on the Spin Characteristics of a General Aviation Airplane C81-145  
 Single Pilot IFR Autopilot Complexity/Benefit Tradeoff Study C81-130  
 Structure-Borne Noise Prediction for a Single-Engine General Aviation Aircraft C81-125  
 Scaling Wake-Particle Interactions for Aerial Applications Research C81-107  
 Effect of Winglets on Performance and Handling Qualities of General Aviation Aircraft C81-106  
 A Geometrical Study of the Steady-State Spin for a Typical Low-Wing General Aviation Aircraft C81-093  
 Longitudinal Aerodynamic Characteristics of the ATLIT Airplane C81-085  
 Determination of the Spin and Recovery Characteristics of a General Aviation Design C81-043  
 Characteristics of Propeller Noise on an Aircraft Fuselage C81-037  
 Equilibrium Spinning of a Typical Single-Engine Low-Wing Light Aircraft C81-036  
 Full-Scale Wind-Tunnel Study of the Effect of Nacelle Shape on Cooling Drag C81-016  
 Carburetor Ice Flight Testing: Use of an Anti-Icing Fuel Additive C81-001

### **Ground Effect Machines**

- Effects of Fan, Ducting and Powerplant Characteristics on the Cushion Stability of Air Cushion Vehicles C81-063  
 Effects of Fan, Ducting and Powerplant Characteristics on the Cushion Stability of Air Cushion Vehicles C81-063

### **Guidance and Control**

- Single Pilot IFR Autopilot Complexity/Benefit Tradeoff Study C81-130  
 Multiple-Tactical Aircraft Combat Performance Evaluation System C81-095

### **Handling Qualities, Stability and Control**

- Influence of Landing Gear Flexibility on Aircraft Performance During Ground Roll C81-181  
 Wing/Store Flutter with Nonlinear Pylon Stiffness C81-179  
 Linear and Nonlinear Aerodynamics of Three-Surface Aircraft Concepts C81-175  
 Low Reynolds Number Aerodynamic Characteristics of Low-Drag NACA 63-208 Airfoil C81-155  
 High-Alpha Aerodynamic Model Identification of T-2C Aircraft Using the EBM Method C81-151  
 Effects of Wing Leading-Edge Design on the Spin Characteristics of a General Aviation Airplane C81-145  
 Effect of Winglets on Performance and Handling Qualities of General Aviation Aircraft C81-106  
 New Rig for Flight Mechanics Studies C81-064  
 Assessment of Propeller Influence on Lateral-Directional Stability of Multiengine Aircraft C81-062  
 Turbulent Wind and Its Effect on Flight C81-058  
 Determination of the Spin and Recovery Characteristics of a General Aviation Design C81-043  
 Aerodynamic and Inlet Flow Characteristics of Several Hypersonic Airbreathing Missile Concepts C81-042  
 Equilibrium Spinning of a Typical Single-Engine Low-Wing Light Aircraft C81-036  
 Alleviation of Spin-Entry Tendencies through Localization of Wing-Flow Separation C81-014

### **Helicopters**

- Higher Harmonic Control for Helicopters with Two-Bladed and Four-Bladed Rotors C81-193  
 Orthogonal Multiblade Coordinates C81-090  
 Helicopter Rotor Thickness Noise C81-084  
 Experimental Substantiation for Hovering Rotor Vertical Impedance Calculations C81-077  
 Iterative Lifting Surface Method for Thick Bladed Hovering Helicopter Rotors C81-073  
 Vibration Analysis of Rotor Blades with Pendulum Absorbers C81-004

### **Landing Dynamics**

- Aerodynamics of Inverted Leading-Edge Flaps on Delta Wings C81-191

### **Lighter-than-Airships**

- Maritime Patrol Airship Study (MPAS) C81-143  
 Naval Airship Program for Sizing and Performance (NAPSAP) C81-123  
 Flight Dynamics Simulation of a Heavy Lift Airship C81-018

### **Military Missions**

- Maritime Patrol Airship Study (MPAS) C81-143  
 Multiple-Tactical Aircraft Combat Performance Evaluation System C81-095

- Radar Ranges for Carrier-Based AEW Aircraft C81-092  
 Inflight Aircraft Vibration Modes and Their Effect on Aircraft Radar Cross Section C81-054  
 PAN AIR Applications to Weapons Carriage and Separation C81-023  
 Impact of Mission Requirements on V/STOL Propulsion Concept Selection C81-007

### **Navigation, Communication, and Traffic Control**

- Single Pilot IFR Autopilot Complexity/Benefit Tradeoff Study C81-130

### **Noise**

- Propeller Signatures and Their Use C81-172  
 Comparison of Aircraft Noise-Contour Prediction Programs C81-171  
 Upper Surface Blowing Noise of the NASA Ames Quiet Short-Haul Research Aircraft C81-154  
 Analytical Study of the Effects of Wind Tunnel Turbulence on Turbofan Rotor Noise C81-153  
 Comparison of Inlet Suppressor Data with Approximate Theory Based on Cutoff Ratio C81-152  
 Predicted Airframe Noise Levels for Certification Flights C81-148  
 Flight and Wind-Tunnel Test Results of a Mechanical Jet Noise Suppressor Nozzle C81-134  
 Acoustic Characteristics of the External Upper Surface Blowing Propulsive-Lift Configuration C81-126  
 Structure-Borne Noise Prediction for a Single-Engine General Aviation Aircraft C81-125  
 Current Status and the Future of Advanced Supersonic Transport Noise C81-104  
 Noise Transmission and Control for a Light Twin-Engine Aircraft C81-103  
 Study and Experimental Tests of Fibrous Acoustic Treatment for Reduction of Fan Noise from XF3-1 Turbofan Engines C81-082  
 Trailing-Edge Airframe Noise Source Studies on Aircraft Wings C81-067  
 Installation Effects on Propeller Noise C81-052  
 Wing Effect on Jet Noise Propagation C81-051  
 Noise Characteristics of Coannular Flow with Conventional and Inverted Velocity Profiles C81-024  
 Some Singular Acoustic Signatures Observed in the Cockpit of a Jet Aircraft C79-003

### **Performance**

- Aerodynamics of Inverted Leading-Edge Flaps on Delta Wings C81-191  
 Advanced Circulation Control Wing System for Navy STOL Aircraft C81-190  
 Impact of Ramp Launch Technology on a Navy Support Aircraft C81-183  
 Influence of Landing Gear Flexibility on Aircraft Performance During Ground Roll C81-181  
 Performance Prediction for Light Airplanes C81-180  
 Prediction of Range and Endurance of Jet Aircraft at Constant Altitude C81-165  
 Validation of a Wing Leading-Edge Stall Prediction Technique C81-158  
 Flight and Wind-Tunnel Test Results of a Mechanical Jet Noise Suppressor Nozzle C81-134

- Conditions for Safe Separation of External Stores C81-115  
 Effect of Winglets on Performance and Handling Qualities of General Aviation Aircraft C81-106  
 Propulsive Aerodynamics of an Advanced Nozzle/Forward Swept Wing Aircraft Configuration C81-105  
 Effects of Drive Slots on Parachute Performance C81-089  
 Minimum Fuel Paths for a Subsonic Aircraft C81-071  
 Effectiveness of Leading-Edge Vortex Flaps on 60 and 75 Degree Delta Wings C81-049  
 Critical Field Length Calculations for Preliminary Design C81-019  
 Flight Dynamics Simulation of a Heavy Lift Airship C81-018  
 Performance Evaluation of an Air Vehicle Utilizing Nonaxisymmetric Nozzles C81-017  
 Full-Scale Wind-Tunnel Study of the Effect of Nacelle Shape on Cooling Drag C81-016  
 Design of the Circulation Control Wing STOL Demonstrator Aircraft C81-008  
 Effects of Wind on Aircraft Cruise Performance C79-004

### **Powerplant Design**

- Infrared Emissions from Turbofans with High Aspect Ratio Nozzles C81-187  
 Recent Development of a Jet-Diffuser Ejector C81-185  
 RALS/VCE Turbine Inlet Temperature and Engine Complexity Optimization Study C81-166  
 Effect of Cross-Shafting on Landing Reliability of V/STOL Aircraft C81-147  
 A Cooled Laminated Radial Turbine Technology Demonstration C81-135 C81-094  
 Aircraft Engine Combustor Casing Life Simulation Evaluation C81-091  
 Viggen Thrust Reverser C81-070  
 History of the Pegasus Vectored Thrust Engine C81-057  
 Analysis of Turbine Blades Using a Rapid Three-Dimensional Photoelastic Method C81-039  
 Impact of Mission Requirements on V/STOL Propulsion Concept Selection C81-007  
 Prediction of Performance of Low-Pressure-Ratio Thrust-Augmentor Ejectors C78-001

### **Propeller and Rotor Systems**

- Application of Unsteady Airfoil Theory to Rotary Wings C81-110  
 Orthogonal Multiblade Coordinates C81-090  
 Utilization of Propagating Stall in a Cascade of Vanes C81-088  
 Propeller Light Aircraft Noise at Discrete Frequencies C81-083  
 Experimental Substantiation for Hovering Rotor Vertical Impedance Calculations C81-077  
 Iterative Lifting Surface Method for Thick Bladed Hovering Helicopter Rotors C81-073  
 Gust Response of Rotor and Propeller Systems C81-066  
 Assessment of Propeller Influence on Lateral-Directional Stability of Multiengine Aircraft C81-062  
 Installation Effects on Propeller Noise C81-052  
 Characteristics of Propeller Noise on an Aircraft Fuselage C81-037

### **Simulation**

- Higher Harmonic Control for Helicopters with Two-Bladed and Four-Bladed Rotors C81-193  
 New Engineering Approach to Motion Cueing Technology for Flight Simulators C81-040  
 Stochastic Modeling of an Aircraft Traversing a Runway Using Time Series Analysis C81-021  
 Flight Dynamics Simulation of a Heavy Lift Airship C81-018

### **Stealth**

- Simple Two-Dimensional-Nozzle Plume Model for Infrared Analysis C81-189  
 Infrared Emissions from Turbofans with High Aspect Ratio Nozzles C81-187

### **Structural Design (including Loads)**

- Nondestructive Buckling Test for an Integally Stiffened Structure C81-144  
 Honeycomb Sandwich Joints for Primary Structures C81-142  
 Design of Advanced Titanium Structures C81-132  
 Structural Concepts for a Mach 5 Cruise Airplane LH2 Fuselage Tank C81-120  
 CAD Produced Aircraft Drawings C81-100  
 Turbulent Wind and Its Effect on Flight C81-058  
 Analysis of Turbine Blades Using a Rapid Three-Dimensional Photoelastic Method C81-039

### **Structural Materials**

- Honeycomb Sandwich Joints for Primary Structures C81-142  
 Advanced Composite Structure Repair Guide C81-141  
 Properties of Large Multispot Ultrasonically Welded Joints C81-140  
 Design of Advanced Titanium Structures C81-132  
 Fatigue and Fracture Behavior of the High Hardenability Martensitic Transage Titanium Alloys C81-124  
 Mission Adaptive Wing System for Tactical Aircraft C81-108  
 Sonic Fatigue Design Data for Bonded Aluminum Aircraft Structures C81-076

### **Testing, Flight and Ground**

- Influence of Wing, Fuselage, and Tail Design on Rotational Flow Aerodynamics Beyond Maximum Lift C81-170  
 Evaluation of Three-Dimensional Transonic Codes Using New Correlation-Tailored Test Data C81-159  
 Determination of an Angle-of-Attack Sensor Correction for a Light Airplane C81-156  
 Analytical Study of the Effects of Wind Tunnel Turbulence on Turbofan Rotor Noise C81-153  
 High-Alpha Aerodynamic Model Identification of T-2C Aircraft Using the EBM Method C81-151  
 A Sensitive Rolling Moment Balance for Use in Supersonic Blowdown Tunnels C81-150  
 A Simple Technique for Sizing Free Jet Facilities C81-146  
 Honeycomb Sandwich Joints for Primary Structures C81-142  
 Flight and Wind-Tunnel Test Results of a Mechanical Jet Noise Suppressor Nozzle C81-134  
 Transonic Flow Calculations for a Wing in a Wind Tunnel C81-131  
 Harmonic Optimization of a Periodic Flow Wind Tunnel C81-114

- Evaluation of a New Concept for Reducing Freestream Turbulence in Wind Tunnels C81-097
- Analysis of Boundary Layers on Perforated Walls of Transonic Wind Tunnels C81-081
- System for the Measurement of the Attitude of Wind Tunnel Models C81-065
- New Rig for Flight Mechanics Studies C81-064
- New Engineering Approach to Motion Cueing Technology for Flight Simulators C81-040
- Application of the Adaptive Wall Concept in Three Dimensions C81-034
- Numerical Design and Analysis of Optimal Slot Shapes for Transonic Test Sections-Axisymmetric Flows C81-033
- Aircraft Wake Investigation C81-013
- Design of the Circulation Control Wing STOL Demonstrator Aircraft C81-008
- Carburetor Ice Flight Testing: Use of an Anti-Icing Fuel Additive C81-001

### Vibration

- Higher Harmonic Control for Helicopters with Two-Bladed and Four-Bladed Rotors C81-193
- Experimental Investigation of Flutter in Midstage Compressor Designs C81-162
- An Attractive Method for Displaying Material Damping Data C81-118
- Noise Transmission and Control for a Light Twin-Engine Aircraft C81-103
- Gust Response of Rotor and Propeller Systems C81-066
- Inflight Aircraft Vibration Modes and Their Effect on Aircraft Radar Cross Section C81-054
- Vibration Analysis of Rotor Blades with Pendulum Absorbers C81-004
- Dynamic Effects of Shock-Induced Flow Separation C75-001

### Energy

#### Lasers

- Adaptive-Wall Wind-Tunnel Development for Transonic Testing C81-048

### Fluid Dynamics

#### Aeroacoustics

- Workshop Report for the AIAA 6th Aeroacoustics Conference C81-184
- Propeller Signatures and Their Use C81-172
- Comparison of Aircraft Noise-Contour Prediction Programs C81-171
- Upper Surface Blowing Noise of the NASA Ames Quiet Short-Haul Research Aircraft C81-154
- Analytical Study of the Effects of Wind Tunnel Turbulence on Turbofan Rotor Noise C81-153
- Comparison of Inlet Suppressor Data with Approximate Theory Based on Cutoff Ratio C81-152
- Predicted Airframe Noise Levels for Certification Flights C81-148
- Acoustic Characteristics of the External Upper Surface Blowing Propulsive-Lift Configuration C81-126
- Current Status and the Future of Advanced Supersonic Transport Noise C81-104
- Noise Transmission and Control for a Light Twin-Engine Aircraft C81-103
- Helicopter Rotor Thickness Noise C81-084
- Propeller Light Aircraft Noise at Discrete Frequencies C81-083

- Installation Effects on Propeller Noise C81-052
- Wing Effect on Jet Noise Propagation C81-051
- Characteristics of Propeller Noise on an Aircraft Fuselage C81-037
- Noise Characteristics of Coannular Flow with Conventional and Inverted Velocity Profiles C81-024
- Some Singular Acoustic Signatures Observed in the Cockpit of a Jet Aircraft C79-003

### Boundary Layers and Convective Heat Transfer-Turbulent

- Study of Nonadiabatic Boundary-Layer Stabilization Time in a Cryogenic Tunnel for Typical Wing and Fuselage Models C81-169
- Experimental Measurements of Shock/Boundary-Layer Interaction on a Supercritical Airfoil C81-075

### Boundary-Layer Stability and Transition

- Moving-Surface Boundary-Layer Control for Aircraft Operation at High Incidence C81-176
- Validation of a Wing Leading-Edge Stall Prediction Technique C81-158
- Comparison of Experimental and Theoretical Turbulence Reduction from Screens, Honeycomb, and Honeycomb-Screen Combinations C81-117

### Computational Methods

- Calculation of High-Speed Inlet Flows Using the Navier-Stokes Equations C81-138
- Transonic Flow Calculations for a Wing in a Wind Tunnel C81-131
- Computational and Simplified Analytical Treatment of Transonic Wing/Fuselage/Pylon/Store Interactions C81-116

### Iterative Lifting Surface Method for Thick Bladed Hovering Helicopter Rotors C81-073

- Cross-Flow Propulsion Fan Experimental Development and Finite-Element Modeling C81-053
- Development of a Vortex-Lift Design Procedure and Application to a Slender Maneuver-Wing Configuration C81-046
- Numerical Design and Analysis of Optimal Slot Shapes for Transonic Test Sections-Axisymmetric Flows C81-033
- PAN AIR Applications to Weapons Carriage and Separation C81-023
- Inverse Transonic Wing Design Method C81-022
- Transonic Flow Calculations over Two-Dimensional Canard-Wing Systems C81-020
- Analysis and Design of Strake-Wing Configurations C80-004

### Hydrodynamics

- Analysis of Strake Vortex Breakdown Characteristics in Relation to Design Features C81-045

### Jets, Wakes, and Viscid-Inviscid Flow Interactions

- Simple Two-Dimensional-Nozzle Plume Model for Infrared Analysis C81-189
- Recent Development of a Jet-Diffuser Ejector C81-185
- Vertical Momentum of the Fountain Produced By Multijet Vertical Impingement on a Flat Ground Plane C81-119

- Evaluation of a New Concept for Reducing Freestream Turbulence in Wind Tunnels C81-097 C81-094

- Utilization of Propagating Stall in a Cascade of Vanes C81-088

- Wing Effect on Jet Noise Propagation C81-051

- Experiments on the Flow about a Supercritical Airfoil Including Holographic Interferometry C81-050

- Criticality of Engine Exhaust Simulations on VSTOL Model-Measured Ground Effects C81-044

- Propeller Slipstream/Wing Interaction in the Transonic Regime C81-035

- Aircraft Wake Investigation C81-013

- Aerodynamics of a Round Jet in a Counterflowing Wind C81-010

- Transonic Flow Past a Symmetrical Airfoil at High Angle of Attack C81-002

- Prediction of Performance of Low-Pressure-Ratio Thrust-Augmentor Ejectors C78-001

### Nonsteady Aerodynamics

- Vortex-Lattice Method for the Calculation of the Nonsteady Separated Flow over Delta Wings C81-188
- Wing/Store Flutter with Nonlinear Pylon Stiffness C81-179
- Moving-Surface Boundary-Layer Control for Aircraft Operation at High Incidence C81-176
- Historical Development of Aircraft Flutter (History of Key Technologies) C81-168
- Flutter Analysis of MBB A-3 Supercritical Airfoil in Small Disturbance Transonic Flow C81-164
- Experimental Modeling of Unstalled Supersonic Turbofan Flutter C81-133
- Harmonic Optimization of a Periodic Flow Wind Tunnel C81-114
- Refined Prediction Method for Supersonic Nonsteady Aerodynamics with AIC Partition Scheme C81-113
- Transonic Airloads on an Energy Efficient Transport Wing with Oscillating Control Surfaces C81-101
- Measurement of Derivatives for an Oscillating Airfoil with Flap C81-068
- Trailing-Edge Airframe Noise Source Studies on Aircraft Wings C81-067
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part III: Wings with Geometrical Discontinuities C81-061
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part II: Geometrically Continuous Wings C81-060
- Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method---Part I: Basic Problems C81-059
- Asymmetric Distortion Generation in a Variable Height Annulus C81-012
- Flutter Analysis of a NACA 64A006 Airfoil in Small Disturbance Transonic Flow C80-035
- Dynamic Effects of Shock-Induced Flow Separation C75-001

### Nozzle and Channel Flow

- A Simple Technique for Sizing Free Jet Facilities C81-146

### Shock Waves and Detonations

- Experimental Measurements of Shock/Boundary-Layer Interaction on a Supercritical Airfoil C81-075

Gun Firing Similarity for Aircraft Interference Problems C81-072

### **Subsonic Flow**

Symmetric Flow Characteristics of Thin Rectangular Wings C81-194

Moving-Surface Boundary-Layer Control for Aircraft Operation at High Incidence C81-176

Sharp-Edged Rectangular Wing Characteristics C81-167

Low Reynolds Number Aerodynamic Characteristics of Low-Drag NACA 63-208 Airfoil C81-155

Evaluation of a New Concept for Reducing Freestream Turbulence in Wind Tunnels C81-097

System for the Measurement of the Attitude of Wind Tunnel Models C81-065

Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method--- Part III: Wings with Geometrical Discontinuities C81-061

Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method--- Part II: Geometrically Continuous Wings C81-060

Three-Dimensional Oscillatory Piecewise Continuous-Kernel Function Method--- Part I: Basic Problems C81-059

Analytical Prediction of Vortex Lift C81-041

Investigation of Delta Wing Leading-Edge Devices C81-032

Spanwise Distribution of Control Points in the Method of Finite Elementary Solutions C81-009

Water Tunnel Flow Visualization: Insight into Complex Three-Dimensional Flow-fields C80-115

Flutter Analysis of a NACA 64A006 Airfoil in Small Disturbance Transonic Flow C80-035

Subsonic and Transonic Similarity Rules for Jet-Flapped Wings C80-025

Dynamic Effects of Shock-Induced Flow Separation C75-001

### **Supersonic and Hypersonic Flow**

Calculation of High-Speed Inlet Flows Using the Navier-Stokes Equations C81-138

Refined Prediction Method for Supersonic Nonsteady Aerodynamics with AIC Partition Scheme C81-113

### **Transonic Flow**

Study of Nonadiabatic Boundary-Layer Stabilization Time in a Cryogenic Tunnel for Typical Wing and Fuselage Models C81-169

Flutter Analysis of MBB A-3 Supercritical Airfoil in Small Disturbance Transonic Flow C81-164

Evaluation of Three-Dimensional Transonic Codes Using New Correlation-Tailored Test Data C81-159

Transonic Flow Calculations for a Wing in a Wind Tunnel C81-131

Computational and Simplified Analytical Treatment of Transonic Wing/Fuselage/Pylon/Store Interactions C81-116

Transonic Airloads on an Energy Efficient Transport Wing with Oscillating Control Surfaces C81-101

Rational Design of an Airfoil for a High-Performance Jet Trainer C81-096

Analysis of Boundary Layers on Perforated Walls of Transonic Wind Tunnels C81-081

Evaluation of Flow Quality in Two NASA Transonic Wind Tunnels C81-078

Experimental Measurements of Shock/Boundary-Layer Interaction on a Supercritical Airfoil C81-075

Experiments on the Flow about a Supercritical Airfoil Including Holographic Interferometry C81-050

Adaptive-Wall Wind-Tunnel Development for Transonic Testing C81-048

Propeller Slipstream/Wing Interaction in the Transonic Regime C81-035

Application of the Adaptive Wall Concept in Three Dimensions C81-034

Inverse Transonic Wing Design Method C81-022

Transonic Flow Calculations over Two-Dimensional Canard-Wing Systems C81-020

Transonic Flow Past a Symmetrical Airfoil at High Angle of Attack C81-002

Subsonic and Transonic Similarity Rules for Jet-Flapped Wings C80-025

### **Viscous Nonboundary-Layer Flows**

Comparison of Experimental and Theoretical Turbulence Reduction from Screens, Honeycomb, and Honeycomb-Screen Combinations C81-117

Active Control of Asymmetric Vortex Effects C81-047

## **Interdisciplinary Topics**

### **Aerospace Technology Utilization**

Aircraft Applications of Titanium: A Review of the Past and Potential for the Future (History of Key Technologies) C81-182

### **Analytical and Numerical Methods**

Sharp-Edged Rectangular Wing Characteristics C81-167

Structure-Borne Noise Prediction for a Single-Engine General Aviation Aircraft C81-125

Naval Airship Program for Sizing and Performance (NAPSAP) C81-123

Critical Field Length Calculations for Preliminary Design C81-019

Role of Figures of Merit in Design Optimization and Technology Assessment C81-015

### **Atmospheric and Space Sciences**

Effects of Inhomogeneities in Atmospheric Turbulence on the Dynamic Response of an Aircraft C81-157

### **Computer Communications, Information Processing and Software**

CAD Produced Aircraft Drawings C81-100

### **Computer Software**

CAD Produced Aircraft Drawings C81-100

### **Computer Technology**

Multiple-Tactical Aircraft Combat Performance Evaluation System C81-095

### **Human Factors**

New Engineering Approach to Motion Cueing Technology for Flight Simulators C81-040

### **Lasers and Laser Applications**

System for the Measurement of the Attitude of Wind Tunnel Models C81-065

### **Law, History, Policy, and Sociology**

Aircraft Technology Development in Sweden 1930-1980 C81-069

### **Reliability, Maintainability, and Logistics Support**

Advanced Composite Structure Repair Guide C81-141

### **Research Facilities and Instrumentation**

A Sensitive Rolling Moment Balance for Use in Supersonic Blowdown Tunnels C81-150

Adaptive-Wall Wind-Tunnel Development for Transonic Testing C81-048

Transonic Flow Past a Symmetrical Airfoil at High Angle of Attack C81-002

Water Tunnel Flow Visualization: Insight into Complex Three-Dimensional Flow-fields C80-115

### **Safety**

Magnitude and Frequency of Wind Speed Shears from 3 to 150 Meters C81-109

Alleviation of Spin-Entry Tendencies through Localization of Wing-Flow Separation C81-014

## **Launch Vehicle and Missile (LV/M) Technology**

### **Aerodynamics**

Active Control of Asymmetric Vortex Effects C81-047

Aerodynamic and Inlet Flow Characteristics of Several Hypersonic Airbreathing Missile Concepts C81-042

### **Dynamics and Control**

Active Control of Asymmetric Vortex Effects C81-047

### **Structural Design (including Loads)**

Cyclic Plasticity and Fatigue of Structural Components C81-161

### **Testing, Flight and Ground**

Recent Development of the YF--17 Active Flutter Suppression System C81-098

## **Marine Technology**

### **Mooring Systems and Cable Mechanics**

Dynamic Stress in a Towing Wire due to Forced Acceleration C81-087

## **Propulsion**

### **Airbreathing Propulsion**

Simple Two-Dimensional-Nozzle Plume Model for Infrared Analysis C81-189

Inlet Drag and Stability Considerations for M/d0=2.00 Design C81-173

Effect of Cross-Shafting on Landing Reliability of V/STOL Aircraft C81-147

A Simple Technique for Sizing Free Jet Facilities C81-146

Calculation of High-Speed Inlet Flows Using the Navier-Stokes Equations C81-138

A Cooled Laminated Radial Turbine Technology Demonstration C81-135

Experimental Modeling of Unstalled Supersonic Turbofan Flutter C81-133

- Propulsive Aerodynamics of an Advanced Nozzle/Forward Swept Wing Aircraft Configuration C81-105
- Cruise Flight Duration of a Low Mach Number Ramjet C81-074
- Viggen Thrust Reverser C81-070
- History of the Pegasus Vectored Thrust Engine C81-057
- Cross-Flow Propulsion Fan Experimental Development and Finite-Element Modeling C81-053
- Performance Evaluation of an Air Vehicle Utilizing Nonaxisymmetric Nozzles C81-017
- Asymmetric Distortion Generation in a Variable Height Annulus C81-012
- Impact of Mission Requirements on V/STOL Propulsion Concept Selection C81-007
- Prediction of Performance of Low-Pressure-Ratio Thrust-Augmentor Ejectors C78-001

### **Combustion and Combustor Designs**

- Aircraft Engine Combustor Casing Life Simulation Evaluation C81-091
- Ambient Effects on Idling Gas Turbine Emissions C81-003

### **Engine Performance**

- Infrared Emissions from Turbofans with High Aspect Ratio Nozzles C81-187
- RALS/VCE Turbine Inlet Temperature and Engine Complexity Optimization Study C81-166
- Cruise Flight Duration of a Low Mach Number Ramjet C81-074

### **Environmental Effects**

- Propeller Signatures and Their Use C81-172
- Comparison of Aircraft Noise-Contour Prediction Programs C81-171
- An Attractive Method for Displaying Material Damping Data C81-118
- Ambient Effects on Idling Gas Turbine Emissions C81-003

### **Propulsion for Marine Application**

- History of the Pegasus Vectored Thrust Engine C81-057

## **Spacecraft Technology**

### **Testing, Flight and Ground**

- Estimation of Flutter Boundary from Random Responses Due to Turbulence at Subcritical Speeds C81-160

## **Structural Mechanics and Materials**

### **Aeroelasticity and Hydroelasticity**

- Aeroelastic Divergence of Unrestrained Vehicles C81-195
- Experimental and Theoretical Study of Nonlinear Flutter C81-192
- Wind Tunnel Demonstration of Aeroelastic Tailoring Applied to Forward Swept Wings C81-178
- Wing/Store Flutter Suppression Investigation C81-177
- Historical Development of Aircraft Flutter (History of Key Technologies) C81-168
- Flutter Analysis of MBB A-3 Supercritical Airfoil in Small Disturbance Transonic Flow C81-164
- Estimation of Flutter Boundary from Random Responses Due to Turbulence at Subcritical Speeds C81-160
- Aeroelastic Tailoring of Forward Swept Composite Wings C81-122

- An Optimization Method for the Determination of the Important Flutter Modes C81-121
- Refined Prediction Method for Supersonic Nonsteady Aerodynamics with AIC Partition Scheme C81-113
- Measurement of Derivatives for an Oscillating Airfoil with Flap C81-068
- Inflight Aircraft Vibration Modes and Their Effect on Aircraft Radar Cross Section C81-054
- Flutter Analysis of a NACA 64A006 Airfoil in Small Disturbance Transonic Flow C80-035

### **Materials, Properties of**

- Aircraft Applications of Titanium: A Review of the Past and Potential for the Future (History of Key Technologies) C81-182
- Properties of Large Multispot Ultrasonically Welded Joints C81-140
- Fatigue and Fracture Behavior of the High Hardenability Martensitic Transage Titanium Alloys C81-124
- An Attractive Method for Displaying Material Damping Data C81-118
- A Quantitative Assessment of the Variables Involved in Crack Propagation Analysis for In-Service Aircraft C81-102

### **Structural Composite Materials**

- Engine Environmental Effects on Composite Behavior C81-186
- Wind Tunnel Demonstration of Aeroelastic Tailoring Applied to Forward Swept Wings C81-178
- Advanced Composite Structure Repair Guide C81-141
- Effects of Compression-Compression Fatigue on Balanced Graphite/Epoxy Laminates with Holes C81-137
- Instability of Composite Panels C81-136
- Aeroelastic Tailoring of Forward Swept Composite Wings C81-122
- Repair of Advanced Composite Structures C81-099
- Practical Method of Crack Growth Analyses for Fighter Aircraft C81-026

### **Structural Design**

- Engine Environmental Effects on Composite Behavior C81-186
- Cyclic Plasticity and Fatigue of Structural Components C81-161
- Analysis of Cracks at Attachment Lugs C81-139
- A Cooled Laminated Radial Turbine Technology Demonstration C81-135
- An Optimization Method for the Determination of the Important Flutter Modes C81-121
- Structural Concepts for a Mach 5 Cruise Airplane LH2 Fuselage Tank C81-120
- Mission Adaptive Wing System for Tactical Aircraft C81-108
- Compression Fatigue Analysis of Fiber Composites C81-079
- Sonic Fatigue Design Data for Bonded Aluminum Aircraft Structures C81-076
- Fatigue Crack Growth at Stress Concentrations Subjected to Strains beyond Elastic Range C81-038
- Practical Method of Crack Growth Analyses for Fighter Aircraft C81-026
- Adaptable Structural Synthesis Using Advanced Analysis and Optimization Coupled by a Computer Operating System C81-025

### **Structural Durability (including Fatigue and Fracture)**

- Engine Environmental Effects on Composite Behavior C81-186
- Cyclic Plasticity and Fatigue of Structural Components C81-161
- Effects of Inhomogeneities in Atmospheric Turbulence on the Dynamic Response of an Aircraft C81-157
- Analysis of Cracks at Attachment Lugs C81-139
- Effects of Compression-Compression Fatigue on Balanced Graphite/Epoxy Laminates with Holes C81-137
- Fatigue and Fracture Behavior of the High Hardenability Martensitic Transage Titanium Alloys C81-124
- A Quantitative Assessment of the Variables Involved in Crack Propagation Analysis for In-Service Aircraft C81-102
- Repair of Advanced Composite Structures C81-099
- Aircraft Engine Combustor Casing Life Simulation Evaluation C81-091
- Compression Fatigue Analysis of Fiber Composites C81-079
- Sonic Fatigue Design Data for Bonded Aluminum Aircraft Structures C81-076
- Fatigue Crack Growth at Stress Concentrations Subjected to Strains beyond Elastic Range C81-038
- Practical Method of Crack Growth Analyses for Fighter Aircraft C81-026

### **Structural Dynamics**

- Effects of Inhomogeneities in Atmospheric Turbulence on the Dynamic Response of an Aircraft C81-157
- Recent Development of the YF-17 Active Flutter Suppression System C81-098
- Dynamic Stress in a Towing Wire due to Forced Acceleration C81-087
- Gust Response of Rotor and Propeller Systems C81-066
- Vibration Analysis of Rotor Blades with Pendulum Absorbers C81-004

### **Structural Stability**

- Experimental Investigation of Flutter in Midstage Compressor Designs C81-162
- Nondestructive Buckling Test for an Integrally Stiffened Structure C81-144
- Instability of Composite Panels C81-136
- Aeroelastic Tailoring of Forward Swept Composite Wings C81-122

### **Structural Statics**

- Analysis of Cracks at Attachment Lugs C81-139
- Repair of Advanced Composite Structures C81-099

### **Thermal Stresses**

- Structural Concepts for a Mach 5 Cruise Airplane LH2 Fuselage Tank C81-120

## **Thermophysics and Thermochemistry**

### **Heat Conduction**

- Study of Nonadiabatic Boundary-Layer Stabilization Time in a Cryogenic Tunnel for Typical Wing and Fuselage Models C81-169

### **Thermochemistry and Chemical Kinetics**

- Ambient Effects on Idling Gas Turbine Emissions C81-003